

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Cancelled)

2. (Currently Amended) The substrate structure of Claim [4] 13 wherein the reflective layer structure includes a thin metal foil layer positioned between the first indicia and the second indicia.

3. (Canceled)

4. (Currently Amended) The substrate structure of Claim [4] 13 wherein the reflective layer comprises one or more of the following materials:

Titanium (IV) Oxide (TiO₂), Zinc Oxide (ZnO), Zirconium (IV) Oxide (ZrO₂), aluminum oxide (AlO₃), aluminum oxide hydroxide (AlO(OH)), aluminum trihydroxide (Al(OH)₃).

5. (Canceled)

6. (Currently Amended) The substrate structure of Claim [4] 13 wherein the reflective layer structure includes:

a first layer of a reflective material disposed on the first surface of the substrate, the first indicia disposed on an outer surface of the first layer; and

a second layer of a reflective material disposed on the second surface of the substrate, the second indicia disposed on an outer surface of the second layer.

7. (Currently Amended) The substrate structure of Claim [4] 13 wherein the reflective layer structure includes reflective radiation blocking materials dispersed within said substrate.

8. (Currently Amended) The substrate structure of Claim [4] 13 wherein the substrate comprises first and second thin layers of a substrate material, and reflective layer structure includes a reflective layer sandwiched between the first thin layer and the second thin layer.

9. (Currently Amended) The substrate structure of Claim [4] 13 wherein the substrate is selected from the group consisting of:
paper, polyester, polyethylene and polystyrene.

10. (Currently Amended) The substrate structure of Claim [4] 13 wherein said fluorescent material is a material which fluoresces energy at a wavelength within the spectral region between 200 and 1100 nanometers upon excitation by excitation radiation.

11. (Currently Amended) The substrate structure of Claim [4] 13 wherein the first indicia and the second indicia are arranged in an overlapping relationship.

12. (Currently Amended) A machine-readable indicia-bearing substrate structure, comprising:

a substrate having a first surface and a second surface;

a first information bearing indicia defined by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia defined by a fluorescent material positioned adjacent to the second surface; and

means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second

indicia during a detection process for reading information from said first indicia or said second indicia, in which detection process the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said means including a reflective layer structure positioned between the first indicia and the second indicia, said reflective layer structure having sufficient thickness and opaqueness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy;

~~The substrate structure of Claim 1~~ further comprising a sheet of a print medium, and said substrate structure is adhered to a surface of the sheet of the print medium.

13. (Currently Amended) A machine-readable indicia-bearing substrate structure, comprising:

a substrate having a first surface and a second surface;

a first information bearing indicia defined by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia defined by a fluorescent material positioned adjacent to the second surface; and

means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, in which detection process the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said means including a reflective layer structure positioned between the first indicia and the second indicia, said reflective layer structure having sufficient thickness and opaqueness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy;

~~The substrate structure of Claim 1~~ wherein the substrate is a print medium, and the indicia are applied to a portion of the print medium which does not receive printed components of an image during a printing process.

14. (Currently Amended) A machine-readable indicia-bearing substrate structure, comprising:

a substrate having a first surface and a second surface;

a first information bearing indicia defined by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia defined by a fluorescent material positioned adjacent to the second surface; and

means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, in which detection process the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said means including a reflective layer structure positioned between the first indicia and the second indicia, said reflective layer structure having sufficient thickness and opaqueness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy;

~~The substrate structure of Claim 1~~, further comprising a layer of a print medium in roll form, and said substrate structure is attached to a surface of the layer of the print medium.

15. (Currently Amended) A print medium encoded with information bearing indicia, comprising:

a layer of a print medium;

an indicia-bearing tape structure adhered to said layer of the print medium, said tape structure comprising:

a tape substrate having a first surface and a second surface;

a first information bearing indicia defined by a fluorescent material positioned adjacent the first surface;

a second information bearing indicia defined by a fluorescent material positioned adjacent the second surface; and

a reflective barrier structure means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process in which the substrate is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said reflective barrier structure of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy.

16. (Currently amended) The print medium of Claim 15 wherein the ~~interference preventing means~~ reflective barrier structure includes a thin metal foil layer positioned between the first indicia and the second indicia.

17. (Currently Amended) The print medium of Claim 15 wherein the ~~means for preventing interference~~ reflective barrier structure includes a reflective or absorptive layer positioned between the first and second indicia.

18. (Currently Amended) The print medium of Claim ~~[17]~~ 15 wherein the reflective barrier structure ~~or absorptive layer~~ comprises one or more of the following materials:

Titanium (IV) Oxide (TiO₂), Zinc Oxide (ZnO), Zirconium (IV) Oxide (ZrO₂), aluminum oxide (AlO₃), aluminum oxide hydroxide (AlO(OH)), aluminum trihydroxide (Al(OH)₃).

19. (Cancelled)

20. (Currently Amended) The print medium of Claim 15 wherein the ~~means for preventing interference~~ reflective barrier structure includes:

a first layer of a reflective ~~or an absorptive material~~ disposed on the first surface of the tape substrate, the first indicia disposed on an outer surface of the first layer; and

a second layer of a reflective ~~or an absorptive material~~ disposed on the second surface of the tape substrate, the second indicia disposed on an outer surface of the second layer.

21. (Currently Amended) The print medium of Claim 15 wherein the ~~means for preventing interference~~ reflective barrier structure includes reflective ~~or absorptive~~ radiation blocking materials dispersed within the tape substrate.

22. (Currently Amended) The print medium of Claim 15 wherein the tape substrate comprises first and second thin layers of a tape material, and the ~~means for preventing interference~~ reflective barrier structure includes a reflective ~~or absorptive~~ layer sandwiched between the first thin layer and the second thin layer.

23. (Original) The print medium of Claim 15 wherein the tape substrate is fabricated from a material selected from the group consisting of:

paper, polyester, polyethylene and polystyrene.

24. (Original) The print medium of Claim 15 wherein said fluorescent material is a material which fluoresces energy at a wavelength within the spectral region between 200 and 1100 nanometers upon excitation by excitation radiation.

25. (Original) The print medium of Claim 15 wherein the first indicia and the second indicia are arranged in an overlapping relationship.

26. (Original) The print medium of Claim 15 wherein the layer of the print medium is a layer of a transparent or clear print material.

27. (Original) The print medium of Claim 15 wherein the layer of the print medium is in sheet form.

28. (Original) The print medium of Claim 15 wherein the layer of the print medium is in roll form.

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Currently Amended) The substrate structure of Claim [4] 13, wherein said substrate is a planar substrate, and said first surface is parallel to said second surface.

33. (Cancelled)

34. (Canceled)

35. (Currently Amended) A machine-readable indicia-bearing substrate structure, comprising:

a planar sheet of a print medium;

a planar substrate structure having a first surface and a second surface which are disposed in an essentially parallel relationship said substrate structure adhered to a surface of said planar sheet;

a first information bearing indicia formed by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia formed by a fluorescent material positioned adjacent to the second surface; and

a thin metal layer positioned between the first indicia and the second indicia for ~~preventing interference between~~ blocking passage therethrough of a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia wherein the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said thin metal layer of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy and thereby prevent interference between the first fluorescing signal and the second fluorescing signal and degradation of said detection process.

36. (Currently Amended) A machine-readable indicia-bearing substrate structure, comprising:

a planar sheet of a print medium;

a planar substrate structure having a first surface and a second surface which are disposed in an essentially parallel relationship, said substrate structure adhered to a surface of said planar sheet;

a first information bearing indicia formed by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia formed by a fluorescent material positioned adjacent to the second surface; and

a reflective layer positioned between the first indicia and the second indicia for ~~preventing interference between~~ blocking passage therethrough of ~~between~~ a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, wherein the substrate structure is illuminated by illumination energy of a predetermined

wavelength or wavelength range which causes said fluorescent material to fluoresce, said reflective layer of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy and thereby prevent interference between the first fluorescing signal and the second fluorescing signal and degradation of said detection process.

37. (Currently Amended) A machine-readable indicia-bearing substrate structure, comprising:

a planar print medium having a first surface and a second surface which are disposed in an essentially parallel relationship;

a first information bearing indicia formed by a fluorescent material positioned adjacent to the first surface at a first portion of the print medium which does not receive printed components of an image during a printing process;

a second information bearing indicia formed by a fluorescent material positioned adjacent to the second surface at a second portion of the print medium which does not receive printed components of an image during a printing process; and

a reflective layer positioned between the first indicia and the second indicia for ~~preventing interference between~~ blocking passage therethrough of a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, wherein the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said reflective layer of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy and thereby preventing interference between the first fluorescing signal and the second fluorescing signal and degradation of said detection process.